

Attorney's Docket No. 3477-89

PATENT

RECEIVED

IN THE UNITED STATES DESIGNATED OFFICE (DO/US)

JAN 17 2002

TECH CENTER 1600/2900

In re: Application of Egan et al.

Group: 1646

Serial No.: 09/674,237

Filed: July 24, 2001

For: *ESE GENES AND PROTEINS*

Date: December 13, 2001

Commissioner for Patents
Washington, DC 20231

INFORMATION DISCLOSURE STATEMENT

Sir:

Attached is a form PTO-1449, together with a copy of the identified document(s). This Information Disclosure Statement is submitted in accordance with 37 C.F.R. § 1.97(b), within three months of the filing date of the above-referenced application or before the mailing of a first Office Action on the merits, whichever event occurs last. Accordingly, no fee is required. The Commissioner is authorized to charge any additional

Respectfully submitted,

Karen A. Magri
Registration No. 41,965

Customer Number:



20792

PATENT TRADEMARK OFFICE

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231, on December 13, 2001.

Traci A. Brown

Date of Signature: December 13, 2001

FORM PTO-1449 U.S. Department of Commerce
Patent and Trademark Office

Attorney Docket Number
3477-89

Serial No.
09/674,237

LIST OF DOCUMENTS CITED BY APPLICANT

(Use several sheets if necessary)

RECEIVED

JAN 17 2002

Applicants: Egan et al.

TECH CENTER 1600/2900

Filing Date: July 24, 2001

Group
1646

U. S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
	1	US 5,717,067 A	02-10-98	Fazioli et al.			

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation Yes No
	2	WO 96 31625 A	10-26-96	PCT			

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	3	H. Riezman, P. G. Woodman, G. van Meer, M. Marsh. Molecular mechanisms of Endocytosis. Cell 91: 731-738, 1997.
	4	S. L. Schmid. Clathrin-coated vesicle formation and protein sorting: an integrated process. Annu. Rev. Biochem. 66: 511-548, 1997.
	5	M. S. Robinson. Coats and budding vesicles. Trends Cell. Biol. 7: 99-102, 1997.
	6	D. E. Warnock, S. L. Schmid. Dynamin GTPase, a force-generating molecular switch. BioEssays 18: 885-893, 1996.
	7	R. Urrutia, J. R. Henley, T. Cook, M. A. McNiven. The dynamins: redundant or distinct functions for an expanding family of related GTPases? Proc. Natl. Acad. Sci. USA 94: 377-384, 1997.
	8	P. Wigge, K. Kohler, Y. Vallis, C. A. Doyle, D. Owen, S. P. Hunt, H. T. McMahon. Amphiphysin Heterodimers: Potential Role in Clathrin-mediated Endocytosis. Molecular Biology of the Cell 8: 2003-2015, 1997.
	9	A. L. Munn, B. J. Stevenson, M. I. Geli, H. Riezman. end5, end6 and end7: mutations that cause actin delocalization and block the internalization step of endocytosis in Saccharomyces cerevisiae. Molecular Biology of the Cell 6: 1721-1742, 1995.
	10	O. Shupliakov, P. Low, D. Grabs, H. Gad, H. Chen, C. David, K. Takei, P. De Camilli, L. Brodin. Synaptic vesicle endocytosis impaired by disruption of dynamin-SH3 domain interactions. Science 276: 259-263, 1997.
	11	P. Wigge, Y. Vallis, H. T. McMahon. Inhibition of receptor-mediated endocytosis by the amphiphysin SH3 domain. Current Biology 7: 554-560, 1997.
	12	H. McLauchlan, J. Newell, N. Morrice, A. Osborne, M. West, E. Smythe. A novel role for Rab5-GDI in ligand sequestration into clathrin-coated pits. Current Biology 8: 34-45, 1997.
	13	P. J. Robinson, J.-M. Sontag, J.-P. Liu, E. M. Fykse, C. Slaughter, H. McMahon, T. C. Sudhof. Dynamin GTPase regulated by protein kinase C phosphorylation in nerve terminals. Nature 365: 163-166, 1993.
	14	J.-P. Liu, A. T. R. Sim, P. J. Robinson. Calcineurin inhibition of Dynamin GTPase activity coupled to nerve terminal depolarization. Science 265: 970-973, 1994.
	15	A. Wilde, F. M. Brodsky. In vivo phosphorylation of Adaptors regulates their interaction with Clathrin. The Journal of Cell Biology 135: 635-645, 1996.

EXAMINER
EXAMINER

DATE CONSIDERED

Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

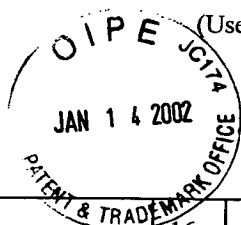
FORM PTO-1449 U.S. Department of Commerce
Patent and Trademark Office

 Attorney Docket Number
 3477-89

 Serial No.
 09/674,237

LIST OF DOCUMENTS CITED BY APPLICANT

(Use several sheets if necessary)



JAN 17 2002

Applicants: Egan et al.

TECH CENTER 1600/2900

Filing Date: July 24, 2001

 Group
 1646

16	R. Bauerfeind, K. Takei, P. De Camilli. Amphiphysin I is associated with coated endocytic intermediates and undergoes stimulation-dependent dephosphorylation in nerve terminals. <i>J. Biol. Chem.</i> 272: 30984-30992, 1997.
17	S. van Delft, R. Govers, G. J. Strous, A. J. Verkleij, P. M. P. van Bergen en Henegouwen. Epidermal growth factor induces ubiquitination of Eps15. <i>Journal of Biological Chemistry</i> 272: 14013-14016, 1997.
18	J.-M. Galan, R. Haguenauer-Tsapis. Ubiquitin Lys63 is involved in ubiquitination of a membrane plasma membrane protein. <i>EMBO J</i> 16: 5847-5854, 1997.
19	J. Terrel, S. Shih, R. Dunn, L. Hicke. A function for monoubiquitination in the internalization of a G protein-coupled receptor. <i>Molecular Cell</i> 1: 193-202, 1998.
20	R. Govers, P. van Kerkhof, A. L. Schwartz, G. J. Strous. Linkage of the ubiquitin-conjugating system and the endocytic pathway in ligand-induced internalization of the growth hormone receptor. <i>EMBO J.</i> 16: 4851-4858, 1997.
21	P. De Camilli, S. D. Emr, P. S. McPherson, P. Novick. Phosphoinositides as regulators in membrane traffic. <i>Science</i> 271: 1533-1539, 1996.
22	E. Kubler, H. Riezman. Actin and fimbrin are required for the internalization step of endocytosis in yeast. <i>EMBO J.</i> 12: 2855-2862, 1993.
23	H. Benedetti, S. Rath, F. Crausaz, H. Riezman. The END3 gene encodes a protein that is required for the internalization step of endocytosis and for actin cytoskeleton organization in yeast. <i>Mol. Biol. Cell.</i> 5: 1023-1037, 1994.
24	M. I. Geli, H. Riezman. Role of Type I Myosin in receptor-mediated endocytosis in yeast. <i>Science</i> 272: 533-535, 1996.
25	H.-Y. Tang, M. Cai. The EH-domain-containing protein Pan1 is required for normal organization of the actin cytoskeleton in <i>Saccharomyces cerevisiae</i> . <i>Mol. Cell. Biol.</i> 16: 4897-4914, 1996.
26	V. Moreau, J.-M. Galan, G. Devilliers, R. Haguenauer-Tsapis, B. Winsor. The yeast Actin-related protein Arp2p is required for the internalization step of endocytosis. <i>Molecular Biology of the Cell</i> 8: 1361-1375, 1997.
27	B. Wendland, S. D. Emr. Pan1p, Yeast eps15, functions as a multivalent adaptor that coordinates protein-protein interactions essential for endocytosis. <i>Journal of Cell Biology</i> 141: 71-84, 1998.
28	F. Fazioli, L. Minichiello, B. Matoskova, W. T. Wong, P. P. Di Fiore. eps15, A novel tyrosine kinase substrate, exhibits transforming activity. <i>Mol. Cell. Biol.</i> 13: 5814-5828, 1993.
29	A. Benmerah, J. Gagnon, B. Begue, B. Megarbane, A. Dautry-Varsat, N. Cerf-Bensussan. The Tyrosine kinase substrate EPS15 is constitutively associated with the plasma membrane adaptor AP2. <i>J. Cell Biol.</i> 131: 1831-1838, 1995.
30	F. Tebar, T. Sorkina, A. Sorkin, M. Ericsson, T. Kirchhausen. Eps15 Is a component of Clathrin-coated Pits and Vesicles and is located at the Rim of Coated Pits. <i>Journal of Biological Chemistry</i> 271: 28727-28730, 1996.
31	F. Tebar, S. Confalonieri, R. E. Carter, P. P. Di Fiore, A. Sorkin. Eps15 is Constitutively Oligomerized due to Homophilic interaction of its Coiled-coil domain. <i>Journal of Biological Chemistry</i> 272: 15413-15418, 1997.
32	R. Carbone, S. Fre, G. Iannolo, F. Belleudi, M. P., P. G. Pelicci, M. R. Torrissi, P. P. Di Fiore. eps15 and eps15R are essential components of the endocytic pathway. <i>Cancer Research</i> 57: 5498-5504, 1997.
33	A. Benmerah, C. Lamaze, B. Begue, S. L. Schmid, A. Dautry-Varsat, N. Cerf-Bensussan. AP-2/Eps15 interaction is required for receptor-mediated endocytosis. <i>Journal of Cell Biology</i> 140: 1055-1062, 1998.
34	W. T. Wong, C. Schumacher, A. E. Salcini, A. Romano, P. Castagnino, P. G. Pelicci, P. P. Di Fiore. A protein-binding domain, EH, identified in the receptor tyrosine kinase substrate EPS15 and conserved in

 EXAMINER
 EXAMINER

DATE CONSIDERED

Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449 U.S. Department of Commerce
Patent and Trademark Office

Attorney Docket Number
3477-89

Serial No.
09/674,237

LIST OF DOCUMENTS CITED BY APPLICANT

(Use several sheets if necessary)

RECEIVED

JAN 17 2002

Applicants: Egan et al.

TECH CENTER 1600/290

Filing Date: July 24, 2001

Group
1646

		evolution. <i>Proc. Natl. Acad. Sci. USA</i> 92: 9530-9534, 1995.
35		P. P. Di Fiore, P. G. Pelicci, A. Sorkin. EH: a novel protein-protein interaction domain potentially involved in intracellular sorting. <i>Trends. Biochem. Sci.</i> 22: 411-413, 1997.
36		C. Schumacher, B. S. Knudsen, T. Ohuchi, P. P. Di Fiore, R. H. Glassman, H. Hanafusa. The SH3 domain of Crk binds specifically to a conserved proline-rich motif in Eps15 and Eps15R. <i>Journal of Biological Chemistry</i> 270: 15341-15347, 1995.
37		A. Benmerah, B. Begue, A. Dautry-Vasat, N. Cerf-Bensussan. The Ear of alpha-Adaptin interacts with the COOH-terminal domain of the EPS15 protein. <i>Journal of Biological Chemistry</i> 271: 12111-12116, 1996.
38		G. Iannolo, A. E. Salcini, I. Gaidarov, O. B. J. Goodman, J. Baulida, G. Carpenter, P. G. Pelicci, P. P. Di Fiore, J. H. Keen. Mapping of the molecular determinants involved in the interaction between Eps15 and AP2. <i>Cancer Research</i> 57: 240-245, 1997.
39		L. Coda, A. E. Salcini, S. Confalonieri, G. Pelicci, T. Sorkina, A. Sorkin, P. G. Pelicci, P. P. Di Fiore. Eps15R is a tyrosine kinase substrate with characteristics of a docking protein possibly involved in coated pits-mediated internalization. <i>Journal of Biological Chemistry</i> 273: 3003-3012, 1998.
40		B. Wendland, J. M. McCaffery, Q. Xiao, S. D. Emr. A Novel Fluorescence-activated Cell Sorter-based screen for yeast Endocytosis mutants identifies a yeast homologue of mammalian eps15. <i>J. Cell Biol.</i> 135: 1485-1500, 1996.
41		S. Rath, J. Rohrer, F. Crausaz, H. Riezman. end3 and end4: Two mutants defective in receptor-mediated and fluid-phase endocytosis in <i>Saccharomyces cerevisiae</i> . <i>The Journal of Cell Biology</i> 120: 55-65, 1993.
42		H. Y. Tang, A. Munn, M. Cai. EH domain proteins Pan1p and End3p are components of a complex that plays a dual role in organization of the cortical actin cytoskeleton and endocytosis in <i>Saccharomyces cerevisiae</i> . <i>Mol. Cell. Biol.</i> 17: 4294-4304, 1997.
43		T. Zoladek, A. Tobiasz, G. Vaduva, M. Boguta, N. C. Martin, A. K. Hopper. MDP1, a <i>Saccharomyces cerevisiae</i> gene involved in mitochondrial/cytoplasmic protein distribution, is identical to the ubiquitin-protein ligase gene RSP5. <i>Genetics</i> 145: 595-603, 1997.
44		P. S. McPherson, E. P. Garcia, V. I. Slepnev, C. David, X. Zhang, D. Grabs, W. S. Sossin, R. Bauerfeind, Y. Nemoto, P. De Camilli. A presynaptic inositol-5-phosphatase. <i>Nature</i> 379: 353-357, 1996.
45		A. E. Salcini, S. Confalonieri, M. Doria, E. Santolini, E. Tassi, O. Minencova, G. Cesareni, P. G. Pelicci, P. P. Di Fiore. Binding specificity and in vivo targets of the EH domain, a novel protein-protein interaction module. <i>Genes & Development</i> 11: 2239-2249, 1997.
46		I. Gout, R. Dhand, I. D. Hiles, M. J. Fry, G. Panayotou, P. Das, O. Truong, N. F. Totty, J. Hsuan, G. W. Booker, I. D. Campbell, M. D. Waterfield. The GTPase dynamin binds to and is activated by a subset of SH3 domains. <i>Cell</i> 75: 25-36, 1993.
47		C. David, P. S. McPherson, O. Mundigl, P. De Camilli. A role of amphiphysin in synaptic vesicle endocytosis suggested by its binding to dynamin in nerve terminals. <i>Proc. Natl. Acad. Sci. USA</i> 93: 331-335, 1996.
48		M. H. Butler, C. David, G.-C. Ochoa, Z. Freyberg, L. Daniell, D. Grabs, O. Cremona, P. De Camilli. Amphiphysin II (SH3P9;BIN1), a member of the Amphiphysin/Rvs family, is concentrated in the cortical cytomatrix of axon initial segments and Nodes of Ranvier in brain and around T Tubules in skeletal muscle. <i>Journal of Cell Biology</i> 137: 1355-1367, 1997.
49		C. Leprince, F. Romero, D. Cussac, B. Vayssiere, R. Berger, A. Tavitian, J. H. Camonis. A new member of the Amphiphysin family connecting endocytosis and signal transduction pathways. <i>J. Biol. Chem.</i> 272: 15101-15105, 1997.
50		A. R. Ramjaun, K. D. Micheva, I. Bouchelet, P. S. McPherson. Identification and characterization of a nerve terminal-enriched amphiphysin isoform. <i>J. Biol. Chem.</i> 272: 16700-16706, 1997.

EXAMINER
EXAMINER

DATE CONSIDERED

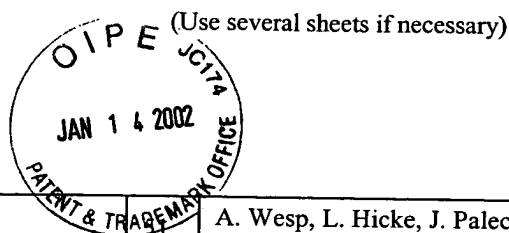
Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449 U.S. Department of Commerce
Patent and Trademark Office

Attorney Docket Number
3477-89

Serial No.
09/674,237

LIST OF DOCUMENTS CITED BY APPLICANT



(Use several sheets if necessary)

Applicants: Egan et al.

Filing Date: July 24, 2001

Group
1646

	✓	A. Wesp, L. Hicke, J. Palecek, R. Lombardi, T. Aust, A. L. Munn, H. Riezman. End4p/Sla2p Interacts with Actin-associated proteins for endocytosis in <i>Saccharomyces cerevisiae</i> . <i>Molecular Biology of the Cell</i> 8: 2291-2306, 1997.
	52	E. de Heuvel, A. W. Bell, A. R. Ramjaun, K. Wong, W. S. Sossin, P. S. McPherson. Identification of the major Synaptojanin-binding proteins in the brain. <i>J. Biol. Chem.</i> 272: 8710-8716, 1997.
	53	N. Ringstad, Y. Nemoto, P. De Camilli. The SH3p4/SH3p8/SH3p13 protein family: binding partners for synaptojanin and dynamin via a Grb2-like Src homology 3 domain. <i>Proc. Natl. Acad. Sci. USA</i> 94: 8569-8574, 1997.
	54	Z. Wang, M. F. Moran. Requirement for the Adapter protein Grb2 in EGF receptor endocytosis. <i>Science</i> 272: 1935-1939, 1996.
	55	A. B. Sparks, N. G. Hoffman, S. J. McConnel, D. M. Fowlkes, B. K. Kay. Cloning of ligand targets: Systematic isolation of SH3 domain-containing proteins. <i>Nature Biotechnology</i> 14: 741-744, 1996.
	56	P. Cupers, E. ter Haar, W. Boll, T. Kirchhausen. Parallel dimers and anti-parallel tetramers formed by Epidermal Growth Factor Receptor Pathway Substrate Clone 15 (Eps15). <i>Journal of Biological Chemistry</i> 272: 33430-33434, 1997.
	57	H. Stenmark, C. Bucci, M. Zerial. Expression of Rab GTPases using recombinant vaccinia virus. <i>Meth. Enzymol.</i> 257: 155-164, 1995.
	58	S. van Delft, C. Schumacher, W. Hage, A. J. Verkleij, P. M. P. van Bergen en Henegouwen. Association and Colocalization of Eps15 with Adaptor Protein-2 and Clathrin. <i>The Journal of Cell Biology</i> 136: 811-821, 1997.
	59	M. Toth, J. Grimsby, G. Buzsaki, G. P. Donovan. Epileptic seizures caused by inactivation of a novel gene, jerky, related to centromere binding protein-B in transgenic mice. <i>Nature Genetics</i> 11: 71-75, 1995.
	60	Roos, J. and Kelly, R. B. Dap160, a Neural-specific Eps15 homology and multiple SH3 domain-containing protein that interacts with <i>Drosophila</i> Dynamin. <i>J. Biol. Chem.</i> 273, 19108-19119, 1998.
	61	Ren, R., Mayer, B.J. Cicchetti, P. and Baltimore, D. Identification of a Ten-Amino Acid Proline-Rich SH3 Binding Site. <i>Science</i> , 259, 1157-1161, 1993.
	62	Hall, A. Rho GTPases and the actin cytoskeleton. <i>Science</i> , 279, 509-514, 1998.
	63	Nalefski, E.A. and Falke, J.J. The C2 domain calcium-binding motif: Structural and functional diversity. <i>Protein Science</i> . 5, 2375-2390, 1996.
	64	Chen, H., et al., Epsin is an EH-domain binding protein implicated in clathrin-mediated endocytosis. <i>Nature</i> , 394, 793-797.
	65	Stukenberg, P.T. et al., Systematic identification of mitotic phosphoproteins. <i>Current Biology</i> , 7, 338-348, 1997.
	66	Tang, H. Y. and Cai, M. The EH-domain containing protein Pan1 is required for normal organization of the actin cytoskeleton in <i>Saccharomyces cerevisiae</i> . <i>Mol. Cell. Biol.</i> 16, 4897-4914, 1996.
	67	DATABASE EMVRT E.M.B.L. Databases, Accession Number: AF032118, 27 November 1997.
	68	Yamabhai, M. et al. (1998) "Intersectin, a novel adaptor protein with two Eps15 homology and five Src homology 3 domains" <i>JOURNAL OF BIOLOGICAL CHEMISTRY</i> , v. 273, no. 47, pp. 31401-31407.
	69	DATABASE EMEST24, E.M.B.L. Databases, Accession Number: AA061808, 24 September 1996, Marra, M. et al.
	70	DATABASE EMEST23, E.M.B.L. Databases, Accession Number: AA217338, 11 February 1997, Marra M. et al.
	71	Sengar, A. et al., (1999), "The EH and SH3 domain Eps proteins regulate endocytosis by linking to dynamin and Eps15" <i>EMBO JOURNAL</i> , v. 18, no. 5, pp. 1159-1171.

EXAMINER
EXAMINER

DATE CONSIDERED

Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

